

WHAT IS CLAIMED IS:

1. A headset apparatus, couplable to a wireless device capable of emitting radio frequency electromagnetic radiation, that reduces exposure of a user to the radio frequency electromagnetic radiation by transferring at least one communication between a first interface proximate the wireless device and a second interface, the headset apparatus comprising:
 - a first converter to receive the communication and in response to generate an optical communication, said first converter coupled with a first selected one of the first interface and second interface;
 - a second converter to receive said optical communication and in response to generate a second communication, said second converter coupled with a second selected one of the first interface and the second interface different from the first selected one, wherein said first and second converters are coupled with different interfaces; and
 - an optical coupling between said first and second converters to communicate said optical communication therebetween and to reduce transferred radio frequency electromagnetic radiation therebetween.
- 20 2. The headset of claim 1, wherein the communication includes an output audio communication from the wireless device to a user, wherein said headset apparatus further comprises: a speaker couplable to the user and a connector couplable to said wireless device, wherein the audio communication is transferred using said connector to said first converter coupled with said first interface, and said second communication is transferred using said speaker to the user.
- 25 3. The headset of claim 1, wherein:
 - the communication includes an input audio communication from a user to the wireless device; and
 - 30 the headset apparatus further comprises a microphone couplable to the user and a connector couplable to said wireless device, wherein the input audio

communication is transferred using said microphone to said first converter coupled with said second interface, and said second communication is transferred using said connector to the wireless device.

- 5 4. The headset of claim 1, wherein the optical coupling is a fiber optic cable.
5. The headset of claim 4, wherein said fiber optic cable includes a first distal end coupled with said first interface, and a second distal end coupled with said second interface.
- 10 6. The headset of claim 5, wherein the optical coupling is at least a length that extends away from the facial and cranial regions of the users head.
- 15 7. The headset of claim 1, wherein a housing encloses the first converter, the optical coupling, and the second converter.
8. The headset of claim 1, wherein at least one of said first converter and said second converter are enclosed within a housing of the wireless device.
- 20 9. The headset of claim 1, wherein the first converter and the second converter at the wireless device-end of the optical coupling are inside the wireless device.
- 25 10. The headset of claim 1, further comprising: an optical interface jack in the device, for removably connecting an optical coupling that is a component of the headset or attachable to the headset.
- 30 11. The headset of claim 1, wherein said first converter and said second converter supports a communication of a communication type selected from a group of types consisting of: (i) audio type communication to the user, (ii) audio type communication to the wireless device, (iii) video type communication to the user, (iv) video type

communication to the wireless device, (v) control type communication, and (vi) a combination of these communication types.

12. The headset of claim 1, wherein the communication is at least one of a
5 communication transferred from the wireless device to the user and communication transferred from the user to the wireless device.

13. A device as in claim 2, wherein:
the optical communication occurs through an optical transmission medium
10 over a length less than 10 mm; and
the headset and wireless device are connected by means of electrical wires.

14. A device as in claim 13, wherein two said devices are provided, one at either end of one or a pair of electrical wires.
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15. A device as in claim 13, wherein a plurality of such devices are coupled in series.

16. A method of reducing exposure of a user to electromagnetic radiation by
20 transferring at least one communication between a first interface, proximate a wireless device capable of emitting radio frequency electromagnetic radiation, and a second interface, the method comprising:

receiving the communication by a first converter and in response generating an optical communication, said first converter coupled with one of the first interface
25 and second interface;

receiving said optical communication by a second converter and in response generating a second communication, said second converter coupled with one of the first interface and the second interface, wherein said first and second converters are coupled with different interfaces; and

30 communicating said optical communication using an optical coupling between said first and second converters to reduce transferred radiation therebetween.

17. A system to reduce exposure of a user of a wireless device to electromagnetic radiation by transferring at least one communication between a first interface, proximate the wireless device capable of emitting radio frequency electromagnetic radiation, and a second interface, the system comprising:

5 a first converter to receive the communication and in response to generate an optical communication, said first converter coupled with one of the first interface and second interface;

10 a second converter to receive said optical communication and in response to generate a second communication, said second converter coupled with one of the first interface and the second interface, wherein said first and second converters are coupled with different interfaces; and

15 an optical coupling between said first and second converters to communicate said optical communication therebetween and to reduce transferred radiation there between.

18. An optical interface for use with device utilizing radio frequency signals, the interface comprising:

20 a first converter receiving a first electrical signal carrying an information content and generating an optical signal carrying substantially the same information content as said electrical signal in response thereto;

25 a second converter receiving said optical signal and generating a second electrical signal and carrying substantially the same information as said optical signal; and

an optical coupling between said first and second converters to communicate said optical signal there between, the optical coupling operating substantially without radiating radio frequency electromagnetic radiation to regions adjacent the optical coupling.

19. A headset adapter providing a communication link between a wireless device and a headset without requiring a contiguous electrically conductive path that may inadvertently provide a conductive path for emitting secondary radiation to the user; the headset adapter comprising:

5 a first interface

 a second interface;

 an optical coupling extending between the first and second interfaces and having no complete electrically conductive path there between;

10 a first connector jack for mateably coupling the headset adapter with an external headset having at least an earphone, a speaker, and a microphone;

 a second connector jack for mateably coupling the headset adapter with another device; and

 the first and second connector jacks configured to optically or electrically couple to the headset and the device.

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20. A headset adapter as in claim 19, wherein a short optical coupling is used to help reduce secondary radiation that may be transferred to the user.

21. A headset adapter as in claim 19, wherein first interface, optical coupling, and second interface are combined using a single integrated chip design.

22. A headset adapter as in claim 19, wherein the first interface and second interface are combined using a single integrated chip design and coupled with an optical coupling.

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23. A headset adapter as in claim 19, wherein the optical coupling comprises an air gap contained within a housing or within a chip.

24. A headset adapter as in claim 19, wherein the optical coupling comprises an optical fiber.

25. A headset adapter as in claim 19, wherein the optical coupling consists of an air gap.

26. A headset adapter as in claim 19, wherein the optical coupling comprises
5 an opto-isolator chip.